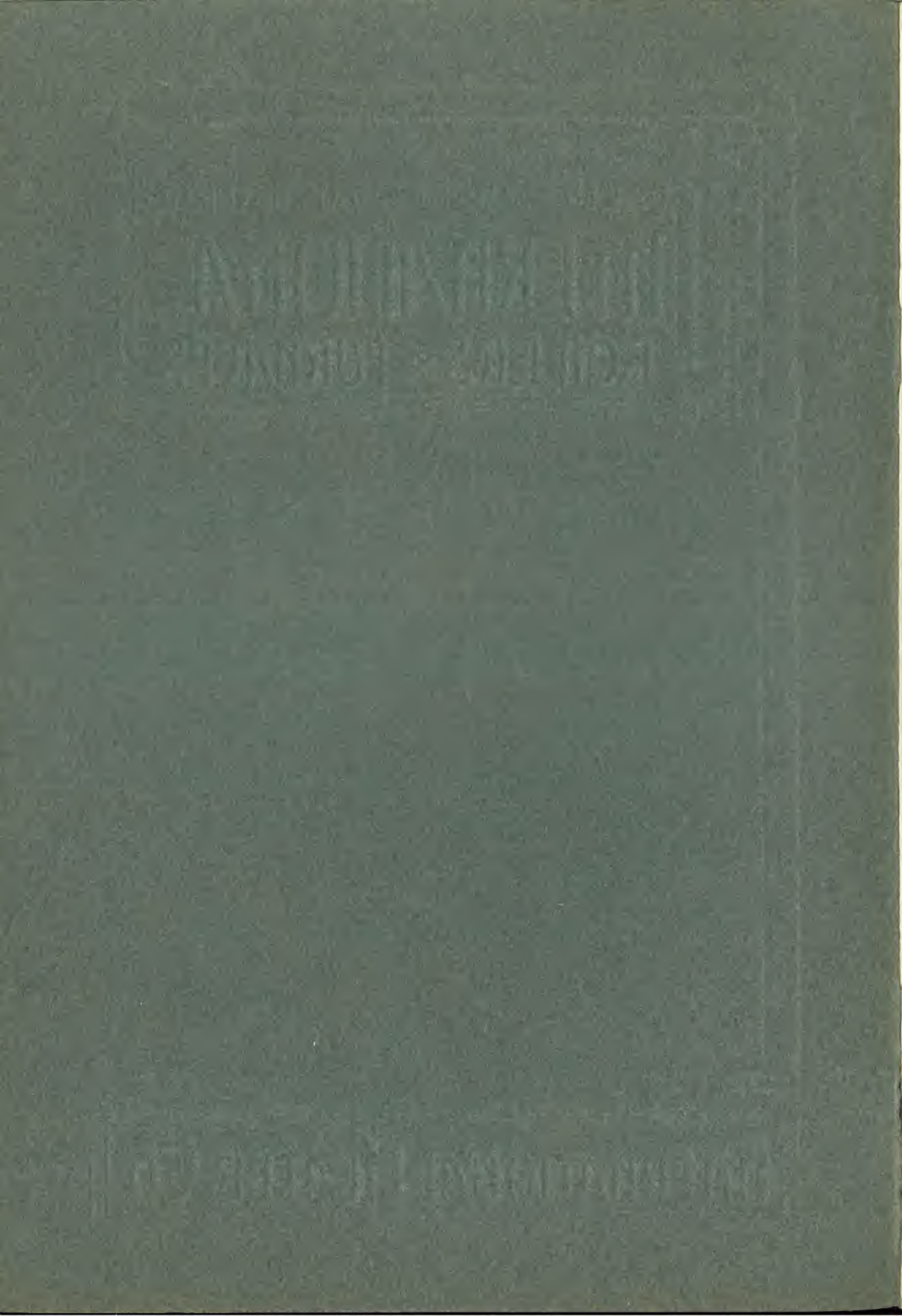


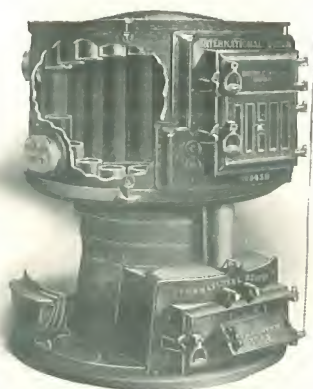
INTERNATIONAL BOILERS & FURNACES

QUEEN
WARM AIR
FURNACE

INTERNATIONAL MACHINERY CO.



INTERNATIONAL QUEEN WARM AIR FURNACE



INTERNATIONAL HEATER CO.

MAKERS OF HEATING APPARATUS

UTICA, N. Y.

BRANCHES AND WAREHOUSES

NEW YORK
601 West 27th Street

CHICAGO
1933-35 Wentworth Avenue

BOSTON
162-172 Washington Street, North



Foreword

A constant in-flow of fresh air is essential to health and happiness in the home, and during the cold winter months a warm air heating system, properly installed, is the most efficient and economical means of securing this all important requisite of right living.

The first step in the installation of a successful warm air furnace system is the selection of a satisfactory, durable and efficient heater, and your interests are best served by a quality rather than a price consideration.

The **INTERNATIONAL QUEEN** is a striking example of a high grade Warm Air Heater, mechanically correct in detail and built to give lasting and efficient service.

In the following pages we describe the features of the **INTERNATIONAL QUEEN** which have contributed toward its reputation as one of the most durable, powerful and efficient heaters procurable.

*The word **INTERNATIONAL** in conjunction with heating apparatus safeguards the intending purchaser. It stands for good material and expert workmanship in construction, and durability, economy, and ease of management in operation.*

The installation of an **INTERNATIONAL QUEEN** insures present comfort and future economy.

INTERNATIONAL HEATER CO.

A Few Words to the House Owner

Fresh Air

Doctors and scientific experts all agree that an abundant supply of fresh air is absolutely essential in the home. With a good warm air furnace of ample size and properly installed, a constant supply of fresh air is furnished at all times, and the process of heating diminishes not a whit the health sustaining properties of pure, fresh air. And it is well worth taking pains to secure.

The following suggestions will aid you in having installed a successful and satisfactory warm air heating apparatus.

Three essentials must be observed—the proper furnace—proper installation, and a proper chimney draft. Keep these three points continually before you while considering this subject.

The Furnace

The Furnace is the foundation of a good heating plant. You probably will not buy more than one or two during your life time. On its selection depends largely the comfort or discomfort of your family during the cold winter months.

First and above everything else, buy a furnace large enough to easily heat the building in the coldest weather. This is the first step toward economy. Do not be influenced by a cheap price or be governed by external appearances only; glittering paint and bronze please the eye, but purchase from the viewpoint of what the furnace offers in the way of service. Select a heater with a reputation for durability, economy of fuel consumption and ease of management. Examine the castings if you can—see that they are heavy and well made; that they are well proportioned; that the joints are made with deep cups, and that provision is made for expansion and contraction of the castings. It is also well to determine whether the manufacturer has a reputation for making *good* furnaces, and if the furnace has been on the market for a few years and has proved its own worth, and that its reputation is not all on paper.

The Heating Contractor

It is very important that you select a competent contractor to install your furnace—one who has had experience in putting in successful warm air heating plants, and one who is in close touch with the manufacturer or his representatives; one who either personally supervises the work or employs a competent man to do so—not necessarily the man who has the store on the main street, and by no means the one who offers you the cheapest price; but the man who does good work, and is competent to properly install the plant.

The Installation

Much depends on the proper installation of the job. The cheapest and poorest furnace made, properly installed, will give better results than the best and highest priced furnace improperly installed.

The furnace must be located centrally, with the pipes of nearly equal length, especially those running to the main rooms. The pipes of sufficient area to carry the warm air required by the various rooms; the registers of the right size and carefully located; the cold air supply properly proportioned. Keep continually in mind that the chances are as one to one hundred that the contractor knows more about the correct installation of the plant than you do, and that if you dictate to him, you assume the responsibility of the results. He will accede to your wishes as to the location of the furnace, registers, etc., where it does not affect the good results which you will demand of him.

The Chimney

Remember that a furnace of itself has no draft. This is furnished by the chimney flue. Also bear in mind that the heating contractor did *not* build the chimney—you provided that, and the best furnace ever made and installed by the most expert heating engineer, will never work successfully with a poor chimney draft.

The flue must not be too small or too large—either is a grave fault, and it must be entirely independent of any other flue, and extend above any part of the building or a nearby building. A poor flue means excessive use of fuel with poor results in heating. Too much care cannot be given to this subject. A simple and safe rule for the inside area of a chimney is that its smallest dimensions shall not be less than 8 inches, and its cross section area always equal to or larger than the smoke pipe area of the furnace to be used.

The Guarantee

It is customary for the heating contractor to guarantee that the furnace will heat certain rooms to a certain degree in cold weather. It is quite right for the purchaser to ask for such a guarantee if he will do his part, viz.: provide a proper chimney draft, proper fuel and ordinary care and above all follow the contractor's ideas as to the location of the furnace.

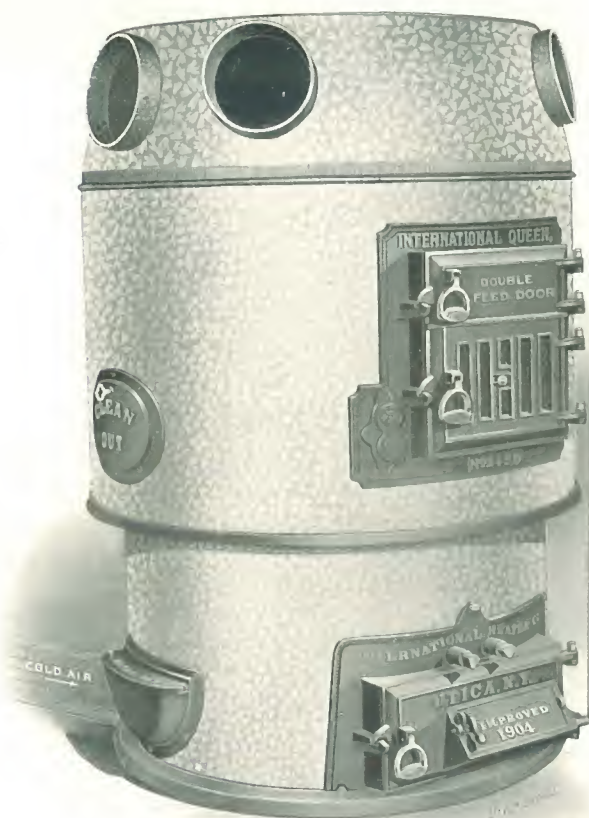
If you employed a physician to attend you when you were ill, and did not follow his advice, you would not blame him if you did not improve. By the same token—do not blame the heating contractor if your furnace does not heat successfully if you do not follow his advice, but insist that he follow yours.

A Last Word

If you are successful in buying a Warm Air Furnace plant for-\$125.00 which the heating contractor originally told you could not be done for less than \$180.00 and do it right, the chances are you will get just what you pay for, viz.: a \$125.00 job, which will probably be a most expensive and unsatisfactory investment. In nine cases out of ten, it will mean excessive coal consumption and a poorly heated house.

Think it over carefully before you award your heating contract.

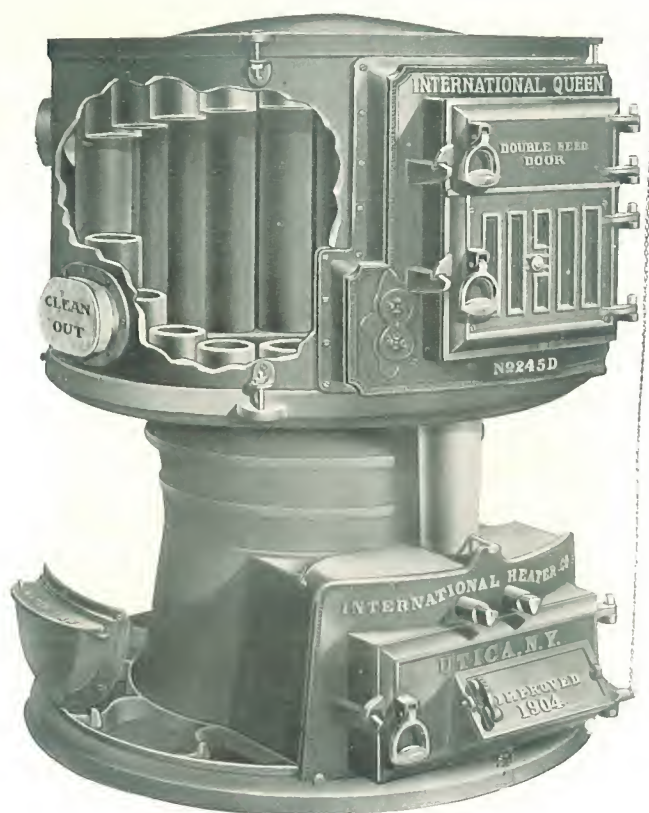
INTERNATIONAL QUEEN



The INTERNATIONAL Queen Warm Air Furnace

This is an illustration of the heater cased in galvanized iron ready for the heating pipes. Note the large double feed door and the offset casing which compels the entering air to hug the fire pot. The conveniently located cleanouts and the large ash-pit door are plainly shown.

INTERNATIONAL QUEEN



No. 245 D

The INTERNATIONAL Queen Warm Air Furnace

This illustration shows the furnace without casing—the steel shell and several of the wrought iron boiler tubes being broken away to show the interior construction. Note the space between the steel shell and the boiler tubes through which the heated gases travel to the smoke pipe.

INTERNATIONAL QUEEN

The Radiator

The most distinctive feature of the **INTERNATIONAL QUEEN** furnace is the radiator. As shown in the illustration it consists primarily of a series of tubes firmly embedded into cast iron top and bottom decks with a heavy steel plate shell (of No. 12 gauge, approximately $\frac{1}{8}$ " thick) extending between the decks and, with the exception of the feed door opening, entirely surrounding the tubes. These tubes are genuine standard lap-welded boiler tubing exactly the same that is used in steam power boilers that carry a pressure of over 100 lbs. to the sq. inch. This material will neither burn out, crack or warp even when exposed to the most intense heat. Its superiority over steel plate or cast iron is self evident. The flues or tubes are set close together; the front tubes are so spaced as to allow some of the products of combustion to pass between them, but the greater percentage of the combustion *must pass to the front* and around either side between the tubes and steel shell to the smoke exit—the tubes at the rear are set close together so the combustion cannot escape directly into the smoke exit.

This long fire travel surrounds the tubes with flame and highly heated gases, insuring the delivery of large volumes of thoroughly heated air at a high velocity. Add to the radiating surface in the tubes

the large area of effective heating surface in the steel plate shell, the firepot heating surface and the additional heating surface in the top and bottom decks, and it is readily seen why the **INTERNATIONAL QUEEN** is one of the most powerful heaters on the market. The illustration on page seven shows clearly the air passage through the furnace, while the accompanying illustration shows the long and efficient fire travel.



Broken View of Radiator Turned on its Side, Showing Fire Travel

The Feed Door

is made double—each door being hinged independently so that the lower door can be used without opening the upper one. When both doors are used it makes an unusually large opening, sufficient to admit large chunks of wood and permitting of the greatest of ease in replenishing fuel when coal is used.

The Fire Pot

is of ample depth and to insure the greatest possible durability is made in three sections. This three-piece construction allows the iron to expand and contract without liability of cracking. Each section is a heavy, one-piece casting provided with deep gas-tight cup joints—the very best form of connection known.

The Ash Pot

is a heavy one-piece casting without seam or joint. It is made extra deep and provided with a large ash-pit door to facilitate the removal of ashes. The ash-pit rests on a substantial cast iron base—a sand ring joint between them making an absolutely dust tight connection. A dust flue running from the front of the ash-pit to the feed chute prevents dust from escaping into the cellar when the grates are shaken.

Clean Outs

The INTERNATIONAL Queen furnace is easily cleaned—two large clean out doors provided in the steel plate shell allowing free access to the rear of the reversible flue formed by the tubes and the steel plate shell.

The front of the reversible flue is easily reached through the large double feed door opening.

Water Coil Opening

All INTERNATIONAL Queen furnaces with the exception of the smallest and the largest size are equipped with an opening through which a pipe-coil may be introduced into the fire chamber for heating water for domestic purposes, or even one or two radiators in rooms not easily reached by warm air pipes. The openings are located at one side of the feed door opening out of the way of the feed chute. When not in use they are covered by a plate.

In Conclusion

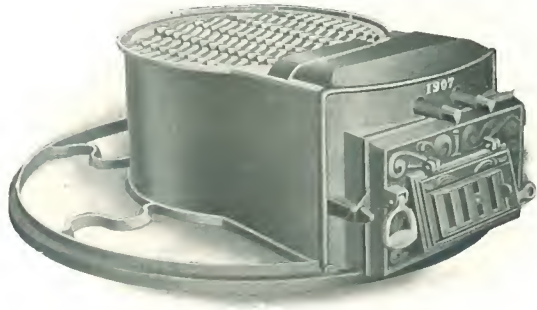
We call attention to the low height of the INTERNATIONAL Queen furnace—a particularly valuable feature, as without proper pitch to the heating pipes it is impossible to secure good results. The height also permits its use in shallow cellars where it would be impossible to use many types of furnaces without constructing a pit. Mention should also be made of the water pan and damper regulator with which all furnaces are equipped. The grates used are fully described on page ten.

INTERNATIONAL QUEEN

The Grates

used in the **INTERNATIONAL QUEEN** furnace are of the well-known triangular type—the best and most durable form of grate known for the successful burning of hard coal.

The bars, which are triangular in shape, are hung in sockets cast with the ash-pit—no bolts or pins whatever are used. The shaker bars which extend through the ash-pit front, operate the companion bars by means of gears—a one-third turn of the bars being sufficient to agitate the fire and expose a fresh face.



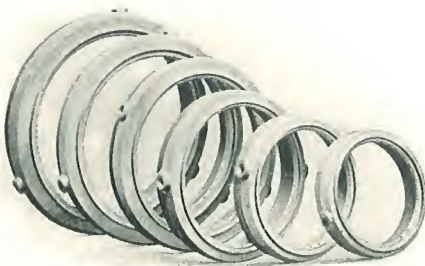
Triangular Grate

The bars are so constructed that the air produces an evenly ignited body of coal over the entire grate surface.

Combination Gas Rings

Where natural gas is used for fuel the **INTERNATIONAL QUEEN** furnace equipped with a gas ring will be found a powerful,

quick and effective heater. The gas rings shown in the illustration are one of the efficient appliances devised for burning natural gas. The ring takes the place of the middle fire pot section and with it the furnace will successfully burn either coal or gas, or both together, without disconnecting or changing the gas pipes. The gas outlets in the ring being so situated and con-



structed that they will not clog with ashes. When natural gas alone is used good results are secured by filling the fire-pot full of broken pieces of fire brick. In this way the heat is retained much longer than when the fire-pot is left unfilled.

Capacities and Measurements

The ratings given below are necessarily estimated and approximate and should be considered as suggestive rather than absolute. The size of furnace necessary to heat a building being a matter of nice judgment in each special case.

The ratings are, however, based on long experience in warm air heating, but climatic and other conditions being so variable they are not guaranteed.

WITH TRIANGULAR GRATE

FOR HARD COAL

No.	Diameter Fire Pot Inches	Diameter Casing Inches	Height Castings Inches	Diameter Smoke Pipe Inches	Estimated Heating Capacity Cubic Feet
237D	18	37	48	6	8 to 15 M
241D	21	41	50	7	12 to 20 M
245D	24	45	51	8	16 to 28 M
249D	26	49	51	8	22 to 38 M
259D	29	59	54	9	35 to 60 M
268	34	68	60	10	50 to 80 M

Made with extra large Double Feed Door except No 268.

GALVANIZED IRON CASING MEASUREMENTS

Size	Length Lower	Width Lower	Length Upper	Width Upper
237D	7' - 11 "	17 $\frac{1}{2}$ "	9' - 7 $\frac{3}{4}$ "	27 $\frac{1}{2}$ "
241D	9' - 2 $\frac{7}{8}$ "	18 $\frac{1}{2}$ "	10' - 8 $\frac{1}{4}$ "	27 $\frac{1}{2}$ "
245D	10' - 4 $\frac{1}{2}$ "	20 $\frac{3}{4}$ "	11' - 9 $\frac{3}{4}$ "	27 $\frac{1}{2}$ "
249D	11' - 6 $\frac{1}{4}$ "	20 $\frac{1}{2}$ "	12' - 11 $\frac{3}{8}$ "	27 $\frac{1}{2}$ "
259D	13' - 2 "	23 $\frac{1}{2}$ "	15' - 6 $\frac{3}{4}$ "	27 $\frac{1}{2}$ "
268	15' - 9 "	23 "	17' - 10 "	36 "

BLACK IRON LINING MEASUREMENTS

237D	7' - 5 "	16 $\frac{3}{4}$	9' - 2 "	27 $\frac{1}{2}$
241D	8' - 6 "	18 $\frac{3}{4}$	10' - 4 "	27 $\frac{1}{2}$
245D	9' - 7 $\frac{1}{2}$ "	20	11' - 5 "	27 $\frac{1}{2}$
249D	10' - 9 "	19 $\frac{3}{4}$	12' - 6 $\frac{1}{2}$ "	27 $\frac{1}{2}$
259D	12' - 8 "	22 $\frac{3}{4}$	15'	27 $\frac{1}{2}$
268	15' - 3 "	22 $\frac{1}{4}$	17' - 4 "	36



INTERNATIONAL
Domestic Water Heater



FITS ANY INTERNATIONAL BOILER
HAVING COIL OPENINGS

THE INTERNATIONAL Domestic Water Heater is designed especially to fit INTERNATIONAL Boilers and Furnaces and is easily placed in position by simply removing the plates covering coil openings.

This water heater placed vertically will heat the commonly used sizes of range boilers, but its capacity can be materially increased if necessity arises by using elbows and nipples and inserting it in a horizontal position just over the fire.

This heater can be used in other makes of heaters than the INTERNATIONAL where they are provided with the usual coil openings.

Price \$3.00 net

See the file at bottom of page
INTERNATIONAL
BOILERS & FURNACES